

application due on April 15, 2002. While Applicant has not filed this reply within the shortened statutory period, a timely reply from the Examiner is earnestly requested.

Please charge Deposit Account No. 23-2126 for any additional fees that may be required to effect this Response.

The Examiner has rejected claims 1-26 under 35 USC § 103 (a) as being unpatentable over Applicant's alleged admission considered with Kaplan et al and Stein et al. Reconsideration of the rejection is respectfully requested for the following reasons:

Applicants reassert that there has been no alleged admission of obviousness in view of the described references in the instant specification. As stated in the previous response, it is respectfully submitted that the references speak for themselves.

Kaplan, U.S. Patent No. 4,842,716 teaches an improved method for reducing fouling and corrosion of ethylene cracking furnaces using petroleum feedstocks wherein a fouling compound is chosen from the group consisting of phosphite esters, phosphate esters, thiophosphite esters, thiophosphate esters and mixtures thereof. These compounds are further characterized in that at least one group on the ester comprises a water-soluble amine having a partition coefficient greater than one. These compounds are simply mixed with a filming amount of at least 2 to 20 ppm of an imidazoline filming inhibitor and introduced into an ethylene cracking furnace. The imidazolines are non-volatile compounds believed to adsorb to the metal surface of the reactor, possible in the form a monolayer, thereby producing a barrier to the corrosive environment. These materials are taught as being added to the reactor in combination to provide both corrosion resistance and anti-coking/ anti fouling properties.

Stein et al. U.S. Patent No. 5,632,865 teaches a method for introducing so-called "aggressive liquid additives," into a vapor-containing process stream. The so-called "aggressive additives" pose corrosion problems if allowed to contact the internal walls of process lines or equipment in liquid form. Such

additives include amines, chloriding agents and sulfiding agents. This reference simply teaches that once a liquid additive is vaporized it is no longer corrosive.

Applicant's invention on the other hand is a method of inhibiting fouling of heat transfer surfaces in contact with petroleum or hydrocarbon feedstocks comprising contacting the heat transfer surfaces with an effective amount of a thermally-treated phosphorus-sulfur compound. Applicants define the term "thermally-treated phosphorus-sulfur compound" on page 7, line 10-14 of the instant application as meaning the material resulting from the thermal treatment of a phosphorous-sulfur compound as characterized by a  $^{31}\text{P}$  NMR chemical shift of 93-97 ppm which forms at the expense of the corresponding starting conventional phosphorous-sulfur compound  $^{31}\text{P}$  resonance and a strong IR bend at around  $687\text{ cm}^{-1}$ .

The rejection over Kaplan et al. in view of Stein et al. is believed improper as Applicant believes that these references are not combinable. Kaplan et al. requires formulating a combination of an antifouling compound with a non-volatile filming corrosion inhibitor (see col. 3, lines 41-44 and col. 4, line 2-5) to effectively reduce fouling and corrosion in an ethylene cracking furnace. But Stein et al. in contrast, teaches reducing the corrosive properties of liquids through vaporization. Clearly, for one of ordinary skill in the art to modify Kaplan using Stein is not possible because the combination would teach against the explicit requirement of not volatilizing the filming corrosion inhibitor portion of Kaplan et al.'s required combination of additives.

Further, Applicants respectfully reiterate that there is no implicit or explicit motivation in either Kaplan et al. or Stein et al. to combine these references and yield the instantly claimed method. Applicant has carefully reviewed both Kaplan et al. and Stein et al. and submits that there is no motivation to combine these references and absent a showing of motivation or suggestion the rejection is submitted to be improper application of hindsight and should be withdrawn.

However, it should be further considered that even if a person having ordinary skill in the related art attempted to combine these references the instant invention would not be obtainable. Kaplan nowhere

suggests or teaches contacting heat transfer surfaces with an effective amount of a thermally-treated phosphorous-sulfur compound according to the presently claimed invention and Stein et al. fails to cure the deficiencies of Kaplan et al. as Stein et al. merely teaches vaporizing so-called "aggressive liquid additives" to reduce their tendency to act as corrosives in the liquid state. Further, Stein et al. never suggests or teaches the presently claimed compounds as would be fairly expected under 35 U.S.C. 112 1<sup>st</sup> paragraph.

Applicants respectfully suggest their "thermally-treated phosphorous-sulfur compound" limitation has not been fully considered in light of the definition in the specification. It is well established that all claim limitations be suggested or taught to establish a *prima facie* case of obviousness and Applicants are of the view that such is not the case. Applicant's have drawn Examiner's attention to this limitation and its definition during their telephonic interview of March 26, 2002. Reconsideration herein in view of the above made arguments is requested.

In view of these comments, Applicants believe that the references taken alone or in combination do not teach or suggest the presently claimed method. For all the aforesaid reasons, Applicants respectfully submit all of the claims are allowable over the cited prior art references. Applicants respectfully request reconsideration in view of the above comments and request an early indication of the allowability of the claims.

Please find attached an Associate Power of Attorney giving the undersigned authority to sign this paper.

Respectfully submitted,



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